UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/750,092	12/31/2003	Zhandong Don Zhong	034827-0112	1890

30542 7590 12/20/2007

FOLEY & LARDNER LLP
P.O. BOX 80278
SAN DIEGO, CA 92138-0278

EXAMINER	
BAUGHMAN, MOLLY E	

ART UNIT	PAPER NUMBER
1637	

MAIL DATE	DELIVERY MODE
12/20/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/750,092	ZHONG ET AL.	
	Examiner	Art Unit	
	Molly E. Baughman	1637	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *21 June 2007 and 30 August 2007*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *28-30 and 40-68* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *28-30 and 40-68* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *10/5/07*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

1. In response to the Pre-Appeal Brief Request, a Pre-Appeal Brief Conference was held on 10/11/2007, and a decision was made to withdraw the rejection(s) of the last Office action. Therefore, the finality of that action is withdrawn.

2. Applicant's arguments, see pg.9-12, filed 6/21/2007, with respect to the following rejections:

a. Claims 28-30, 40-43, 45-46, 53-59, 61-65, and 68 rejected under 35 U.S.C. 103(a) - Eberie et al (US 5,413,906) in view of Bodepudi et al. (US 2004/0171040 A1).

b. Claims 47-49, and 63-65 rejected under 35 U.S.C. 103(a) - Eberie et al (US 5,413,906) in view of Bodepudi et al. (US 2004/0171040 A1), and further in view of Petrie et al. (US 5,824,796).

c. Claims 44, 50-51,60, and 66-67 rejected under 35 U.S.C. 103(a) -Eberie et al (US 5,413,906) in view of Bodepudi et al. (US 2004/0171040 A1), and further in view of Nelson et al., "Simultaneous Detection of Multiple Nucleic Acid Targets in a Homogeneous Format," Biochemistry, 1996, Vol.35, pp.8429-8438.

have been fully considered and are persuasive. The rejections have been withdrawn.

3. Upon further consideration, new grounds of rejection have been made in view of Furfine et al. (WO 01/38587 A2, of record), and Celebuski et al. (EP 0407816 A2).

4. Currently, claims 28-30, and 40-68 are under examination.

Information Disclosure Statement

5. The information disclosure statement (IDS) submitted on 10/5/07 is in compliance with the provisions of 37 CFR 1.97. Accordingly, the information disclosure statement is being considered by the examiner. However, some citations have been either modified, or lined through for the following reasons:

a. Citation No. A1 and A2 have fully been considered, however, have been lined through to avoid duplicate reference listings at time of print (i.e. such references have already been cited by the examiner)

b. The International Search and Examination Report submitted in the information disclosure statement (IDS), has been fully considered, although, it has been lined through as it is not an appropriate document for printed patents (see 37 CFR 1.98).

Claim Rejections - 35 USC § 112

6. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

7. Claims 46-49, 51, 62-65, and 67 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claims 46-49, 51, 62-65, and 67 are indefinite because the "linker comprising a linear or branched hydrocarbylene or heterocarbylene of at least one carbon atom," in

claims 46 and 62 encompassês a wide group of linkers, such that it is unclear how and where the linker (L) is attached to the Acr in "TP-Sugar-Px-L-Acr." As such, this renders the actual structure of the labeled dNTP unclear. While claims 47-49, 51, 63-65, and 67 do not particularly use the phrase, they depend from claims which use the phrase.

Claim Rejections - 35 USC § 103

8. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

9. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

10. Claims 28-30, 40-43, 45, 52-59, 61, and 68 are rejected under 35 U.S.C. 103(a) as being unpatentable over Eberie et al (US 5,413,906, of record), in view of Furfine et al. (WO 01/38587 A2, of record).

Eberie et al. teach a kit containing a template nucleic acid (which can be DNA or RNA, as well as homopolymeric or heteropolymeric – col.3, lines 8-21), at least one detectable and one immobilizable mononucleoside triphosphate, and preferably a primer, wherein neither the RNA template nor the DNA primer contains a detectable or luminescent moiety (column 8, lines 23-65). The kit also contains reagents for detection, such as pH-buffer, detergent, complex former, co-factors, salts, anti-oxidizing agents, and streptavidin coated cuvette, tube, pellets, or microtiter plate (column 8, lines 37-60). Specific examples describe an RT-buffer comprising 5mM of $MgCl_2$ (Column 14, lines 47-49). The mononucleoside triphosphates are triphosphates of nucleosides, which can contain natural bases such as adenine, guanine, cytosine, and uracil or thymine (column 3, lines 34-49), which can be detectable through a dye, a fluorescent label or a component of an immunologic reaction such as an antigen, antibody or hapten, or a covalently bound non-radioactive chemical group. The immobilizable mononucleoside triphosphates can be covalently bound chemical groups which have a specific affinity for a solid phase, i.e. immobilizable through binding partners such as biotin-avidin, biotin-streptavidin, antigen-antibody, hapten-antibody, etc (column 4, lines 1-20).

Eberie does not describe a kit wherein the detectable deoxynucleoside triphosphate is labeled with an acridinium moiety (claims 1, 46-49, 53, and 62-65),

Furfine et al. disclose a method of detecting polynucleic acid polymerase activity by providing primer-template complex and a nucleotide labeled with an energy-emitting chemical species (claim 1). The nucleotide is selected from the group consisting of

dUTP, dTTP, dATP, dCTP, dGTP, ATP, CTP, UTP, GTP (claim 2), wherein the energy-emitting chemical species (i.e. label) is a theromatic acridinium ester and acridinium salt (claim group 11,5,4,1). According to the specification, such labels can also be biotinyl moieties that can be detected by avidin (e.g. streptavidin containing a fluorescent marker) which are incorporated into the polynucleic acid primer-template complex via a labeled nucleotide (page 8, lines 4-12). The method further comprises a reverse transcriptase polymerase (see claim 14) and numerous examples in the specification use various assay buffers for a reverse transcriptase reaction (i.e. example 1 and 3). Such examples disclose the use of various concentrations of $MgCl_2$ ranging from 1 mM to 13.3 mM, wherein the inventors state the examples "are intended to be exemplary only and that numerous changes, modifications and alterations can be employed without departing from the spirit and scope of the invention" (page 14, lines 13-16).

One of ordinary skill in the art would have been motivated to modify the kit of Eberie et al. to include a detectable deoxynucleoside triphosphate (dNTP) that is labeled with an acridinium moiety because Eberie demonstrates it was conventional in the art at the time of the invention to build a kit comprising dNTPs labeled with various detectable labels, and Furfine et al. demonstrate that it was conventional in the art to label dNTPs with acridinium moieties such as theromatic acridinium ester and acridinium salt. Since Eberie demonstrates the benefits of making kit comprising labeled deoxynucleoside triphosphates and Furfine et al. demonstrate that it was conventional in the art at the time of the invention to label dNTPs with acridinium moieties, it would have been obvious to one skilled in the art to substitute one type of

labeled dNTP for the other to achieve the predictable result of making a kit comprising a detectably labeled dNTP.

11. Claims 44, 50, 60, and 66 are rejected under 35 U.S.C. 103(a) as being unpatentable over Eberie et al (US 5,413,906, of record), in view of Furfine et al. (WO 01/38587 A2, of record) as applied to claims 28-30, 40-43, 45, 52-59, 61, and 68 above, and further in view of Nelson et al., "Simultaneous Detection of Multiple Nucleic Acid Targets in a Homogeneous Format," Biochemistry, 1996, Vol.35, pp.8429-8438 (of record).

The teachings of the primary references are discussed above. Although Furfine et al. describe an acridinium ester as a label, they do not teach the acridinium moiety selected from the group consisting of 4-(2-succinimidyl-oxycarbonylethyl)-phenyl- 10-acridinium-9-carboxylate trifluoromethyl sulfonate, 1-methyl-acridinium ester, and 1-methyl-di-meta-fluoro-acridinium ester (claims 50-51, and 66-67). They also do not describe the kit further comprising a dilute acid, hydrogen peroxide, or both (claims 44 and 60).

Nelson et al. teach probes comprising nucleotide bases labeled with various acridinium esters. Such acridinium esters include 4-(2-succinimidyl-oxycarbonylethyl)-phenyl- 10-methylacridinium-9-carboxylate trifluoromethyl sulfonate, 1-methyl-acridinium ester, and 1-methyl-di-meta-fluoro-acridinium ester (pg.8431-8432, "Preparation of 4-(2-succinimidyl-oxycarbonylethyl)-phenyl- 10-methylacridinium-9-carboxylate trifluoromethyl sulfonate" and "Simultaneous Detection of Two Acridinium

Ester-Labeled DNA Probes"). Nelson et al. also teach detecting the acridinium ester labeled nucleotides by chemiluminescence via the addition of 200ul of 0.4N HCl and 0.1% H_2O_2 (pg. 8432, "Characterization of the Differential Hydrolysis Properties of Acridinium Ester-Labeled DNA Probes"), or detection reagent 1 - 200ul of 0.1% H_2O_2, 1mM HNO_3 (pg.8431, "Characterization of the Chemiluminence Properties of Various Acridinium Ester-Labeled DNA Probes").

One of ordinary skill in the art would have been motivated to modify the kit of Eberie et al., as modified by Furfine et al., to include a deoxynucleotide triphosphate labeled with an acridinium moiety having the formula TP-Sugar-Px-L-Acr, wherein the acridinium moiety is 4-(2-succinimidyl-oxycarbonylethyl)-phenyl- 10-acridinium-9-carboxylate trifluoromethyl sulfonate, 1-methyl-acridinium ester, or 1-methyl-di-meta-fluoro-acridinium ester, as well as a dilute acid, and hydrogen peroxide because Nelson et al. demonstrate that such acridinium ester labels and detection of such acridinium ester labels via dilute acids and hydrogen peroxide were well known in the art. The skilled artisan would have had a reasonable expectation of success in using 4-(2-succinimidyl-oxycarbonylethyl)-phenyl- 10-acridinium-9-carboxylate trifluoromethyl sulfonate, 1-methyl-acridinium ester, or 1-methyl-di-meta-fluoro-acridinium ester as a label of the deoxynucleotide triphosphate labeled with an acridinium moiety having the formula TP-Sugar-Px-L-Acr within the kit of Eberie et al., as modified by Furfine et al. It would have been *prima facie* obvious to one of ordinary skill in the art at the time of the invention to make a kit and use the claimed 4-(2-succinimidyl-oxycarbonylethyl)-phenyl-

10-acridinium-9-carboxylate trifluoromethyl sulfonate, 1-methyl-acridinium ester, or 1-methyl-di-meta-fluoro-acridinium ester as the acridinium moiety therein.

12. Claims 28-30, 40-46, 52-62, and 68 are rejected under 35 U.S.C. 103(a) as being unpatentable over Eberie et al (US 5,413,906, of record), in view of Celebuski et al. (EP 0407816 A2).

The teachings of Eberie et al. are discussed above. Eberie does not discuss the kit wherein the detectable deoxynucleoside triphosphate is labeled with an acridinium moiety, nor wherein the deoxynucleoside triphosphate labeled with an acridinium moiety has the formula according to claims 46, and 62.

Celebuski et al. teaches base modified nucleosides. Such modified nucleosides include those having the formula: TP-Sugar-Px-L-Acr, wherein: TP is a triphosphate group attached to the 5' position of the sugar; sugar is a pentose sugar moiety; Px is a purine, pyrimidine, or 7-deazapurine, and wherein Px is attached to the 1' position of the sugar moiety through the N1 position of Px when Px is a pyrimidine or through the N9 position of Px when Px is a purine or a 7-deazapurine; L is a linker comprising linear or branched hydrocarbylene or heterocarbylene of at least one carbon atom, wherein L is covalently attached to Acr at one end of L, and at another end to Px through position C5 or C6 of Px when Px is a pyrimidine, or through position C8 of Px when Px is a purine, or through position C7 or C8 of Px when Px is a 7-deazapurine; and Acr is an acridinium moiety (see Figure 8).

One of ordinary skill in the art would have been motivated to modify the kit of Eberie et al. to include a detectable deoxynucleoside triphosphate (dNTP) that is labeled with an acridinium moiety because Eberie demonstrates it was conventional in the art at the time of the invention to build a kit comprising dNTPs labeled with various detectable labels, and Celebuski et al. demonstrate that it was conventional in the art to label dNTPs with acridinium moieties, particularly those having the formula: TP-Sugar-Px-L-Acr, as in claims 46 and 62. Since Eberie demonstrates the benefits of making kit comprising labeled deoxynucleoside triphosphates and Celebuski demonstrates that it was conventional in the art at the time of the invention to label dNTPs with acridinium moieties as in claims 46 and 62, it would have been obvious to one skilled in the art to substitute one type of labeled dNTP for the other to achieve the predictable result of making a kit comprising a detectably labeled dNTP.

13. Claims 47-49, and 63-65 are rejected under 35 U.S.C. 103(a) as being unpatentable over Eberie et al (US 5,413,906) in view of Celebuski et al. (EP 0407816 A2) as applied to claims 28-30, 40-46, 52-62, and 68 above, and further in view of Petrie et al. (US 5,824,796, of record).

The teachings of the primary references are discussed above. These references do not teach a linker that is a linear hydrocarbylene or heterocarbylene comprising one carbon atom (claim 47 and 63), or a linker that is a linear alkenylene or heteroalkenylene comprising at least 3 carbon atoms (claim 48 and 64), or wherein the

linker is selected from the group consisting of $-CH_2-CH=CH-CH_2-$, $-CH=CH-CH_2-NH-$, $-NH(CH_2)_6NH-$, $-C\equiv C-CH_2NH-$, and $-CH_2-C\equiv C-CH_2-$ (claim 49 and 65).

Petrie teaches using various linkers to attach a nucleobase to a label, wherein such a label is an acridinium ester (column 9, lines 29-55; column 11, lines 15-20; column 13, lines 64-67; and column 14, lines 49-50). Such linkers include a linear alkenylene or heteroalkenylene comprising at least 3 carbon atoms, or wherein the linker is selected from the group consisting of $-CH_2-CH=CH-CH_2-$, $-CH=CH-CH_2-NH-$, $-NH(CH_2)_6NH-$, $-C\equiv C-CH_2NH-$, and $-CH_2-C\equiv C-CH_2-$ (column 10, lines 27-43).

One of ordinary skill in the art would have been motivated to modify the kit of Eberie et al., as modified by Celebuski et al. to include a deoxynucleotide triphosphate labeled with an acridinium moiety having the formula TP-Sugar-Px-L-Acr which has a linker that is a linear hydrocarbylene or heterocarbylene comprising one carbon atom, or a linker that is a linear alkenylene or heteroalkenylene comprising at least 3 carbon atoms or wherein the linker is selected from the group consisting of $-CH_2-CH=CH-CH_2-$, $-CH=CH-CH_2-NH-$, $-NH(CH_2)_6NH-$, $-C\equiv C-CH_2NH-$, and $-CH_2-C\equiv C-CH_2-$ because Petrie et al. demonstrate that it was well known in the art to use linkers including alkenylene groups for attaching labels such as acridinium esters to nucleobases. The skilled artisan would have had a reasonable expectation of success in using a linker in the deoxynucleotide triphosphate labeled with an acridinium moiety having the formula TP-Sugar-Px-L-Acr that is a linear hydrocarbylene or heterocarbylene comprising one carbon atom, or a linker that is a linear alkenylene or heteroalkenylene comprising at least 3 carbon atoms or wherein the linker is selected from the group consisting of –

CH_2-CH=CH-CH_2-, -CH=CH-CH_2-NH-, -NH$(CH_2)_6$NH-, -C≡C-CH_2NH-, and -CH_2-C≡C-CH_2- in the kit of Eberie et al., as modified by Celebuski et al. It would have been *prima facie* obvious to one of ordinary skill in the art at the time of the invention to make a kit and use the claimed hydrocarbylene linker in the deoxynucleotide triphosphate labeled with an acridinium moiety having the formula TP-Sugar-Px-L-Acr therein.

14. Claims 44, 50-51, 60, and 66-67 are rejected under 35 U.S.C. 103(a) as being unpatentable over Eberie et al (US 5,413,906, of record), in view of Celebuski et al. (EP 0407816 A2) as applied to claims 28-30, 40-46, 52-62, and 68 above, and further in view of Nelson et al., "Simultaneous Detection of Multiple Nucleic Acid Targets in a Homogeneous Format," Biochemistry, 1996, Vol.35, pp.8429-8438 (of record).

The teachings of the primary references are discussed above. Although Celebuski et al. describe an acridinium ester as a label, they do not teach the acridinium moiety selected from the group consisting of 4-(2-succinimidyl-oxycarbonylethyl)-phenyl- 10-acridinium-9-carboxylate trifluoromethyl sulfonate, 1-methyl-acridinium ester, and 1-methyl-di-meta-fluoro-acridinium ester (claims 50-51, and 66-67). They also do not describe the kit further comprising a dilute acid, hydrogen peroxide, or both (claims 44 and 60).

Nelson et al. teach probes comprising nucleotide bases labeled with various acridinium esters. Such acridinium esters include 4-(2-succinimidyl-oxycarbonylethyl)-phenyl- 10-methylacridinium-9-carboxylate trifluoromethyl sulfonate, 1-methyl-acridinium ester, and 1-methyl-di-meta-fluoro-acridinium ester (pg.8431-8432,

"Preparation of 4-(2-succinimidyl-oxycarbonylethyl)-phenyl- 10-methylacridinium-9-carboxylate trifluoromethyl sulfonate" and "Simultaneous Detection of Two Acridinium Ester-Labeled DNA Probes"). Nelson et al. also teach detecting the acridinium ester labeled nucleotides by chemiluminescence via the addition of 200ul of 0.4N HCl and 0.1% H_2O_2 (pg. 8432, "Characterization of the Differential Hydrolysis Properties of Acridinium Ester-Labeled DNA Probes"), or detection reagent 1 - 200ul of 0.1% H_2O_2, 1mM HNO_3 (pg.8431, "Characterization of the Chemiluminence Properties of Various Acridinium Ester-Labeled DNA Probes").

One of ordinary skill in the art would have been motivated to modify the kit of Eberie et al., as modified by Celebuski et al., to include a deoxynucleotide triphosphate labeled with an acridinium moiety having the formula TP-Sugar-Px-L-Acr, wherein the acridinium moiety is 4-(2-succinimidyl-oxycarbonylethyl)-phenyl- 10-acridinium-9-carboxylate trifluoromethyl sulfonate, 1-methyl-acridinium ester, or 1-methyl-di-meta-fluoro-acridinium ester, as well as a dilute acid, and hydrogen peroxide because Nelson et al. demonstrate that such acridinium ester labels and detection of such acridinium ester labels via dilute acids and hydrogen peroxide were well known in the art. The skilled artisan would have had a reasonable expectation of success in using 4-(2-succinimidyl-oxycarbonylethyl)-phenyl- 10-acridinium-9-carboxylate trifluoromethyl sulfonate, 1-methyl-acridinium ester, or 1-methyl-di-meta-fluoro-acridinium ester as a label of the deoxynucleotide triphosphate labeled with an acridinium moiety having the formula TP-Sugar-Px-L-Acr within the kit of Eberie et al., as modified by Celebuski et al. It would have been *prima facie* obvious to one of ordinary skill in the art at the time of

the invention to make a kit and use the claimed 4-(2-succinimidyl-oxycarbonylethyl)-phenyl- 10-acridinium-9-carboxylate trifluoromethyl sulfonate, 1-methyl-acridinium ester, or 1-methyl-di-meta-fluoro-acridinium ester as the acridinium moiety therein.

Summary

15. No Claims are free of the prior art.

16. Cruickshank (US 5,091,519) is noted as a reference of interest.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Molly E. Baughman whose telephone number is 571-272-4434. The examiner can normally be reached on Monday-Friday 8-5pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Gary Benzion can be reached on 571-272-0782. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Molly E Baughman
Examiner
Art Unit 1637

12/14/07

KENNETH R. HORLICK, PH.D
PRIMARY EXAMINER

12/18/07